CHAPTER 1 – PURPOSE AND NEED FOR ACTION

1.1 BACKGROUND

The Big Grizzly Fuels Reduction and Forest Health Project has been designed as part of an overall landscape strategy to improve the ability of the landscape to withstand adverse affects from future fires and to begin to restore landscape structure and ecosystem function within the project area to a more resilient and sustainable condition.

1.2 PURPOSE AND NEED

There are four elements to the Purpose and Need for this project. Each proposed treatment unit responds to several of the elements, but each treatment unit does not respond equally to all elements. Some treatment units were identified to best meet some elements while the project alternatives as a whole are designed to provide a blend and balance between different elements of the Purpose and Need.

1) The first purpose of the project is to change existing forest surface, ladder and crown fuel profiles in order to reduce potential wildfire intensity and behavior to mitigate the consequences of large, potentially damaging wildfires on selected forested areas.

There is a need to change potential fire behavior during weather conditions that produce wildfire behavior with extreme fire intensity and severity across a large portion of the landscape. The current fuels conditions within much of the project area make a large portion of the area prone to the risk of a high severity wildfire. Very high to extreme fire hazard and high risk of an ignition have been identified for all watersheds within the project area. The abundance of high density stands with large amounts of ladder and surface fuels within the project area increases probability of crown fire, high flame lengths and high fire line intensities. Plantations selected for treatment currently exhibit a build-up of woody brush species which would easily allow a fire burning under 90th percentile weather conditions to make the transition from surface fire into the crowns of the trees, causing high mortality within plantations and continued fire spread into the surrounding forest stands.

Fire behavior is strongly influenced by stand structure as it relates to live and dead fuel loading and ladder fuels. Reducing a combination of crown density, ladder fuels, and surface fuels is essential to effectively change fire behavior. Reducing surface fuels and ladder fuels reduces the likelihood of crown scorch and crown ignition. The theoretical basis for changing fuel structure to reduce fire hazard is well established (Scott and Reinhardt 2001; Graham et al. 2004, Peterson et al. 2005). The theoretical benefits of fuel manipulation are supported by real world reviews of wildfires and their interaction with fuel treatment areas (Raymond and Peterson, 2005, and Omi et al, 2006).

Treatments are needed that would be effective in terms of reducing potential high severity wildfire damage to multiple resources within and adjacent to the project area. The threat of catastrophic wildfire jeopardizes the Forest Service's directive to manage the project area for the recognized multiple use benefits associated with healthy forests, including diverse wildlife habitat conditions, clean water, quality recreational experiences and productive soils for conifers and other understory vegetation. The landscape in the vicinity of the project area supports remnant older forest habitats that support a high density of California spotted owl territories and contains important watersheds that flow into the Rubicon and American Rivers.

The effects of the Eldorado National Forest's Cleveland Fire (23,000 acres; 1992), Star Fire (17,000 acres; 2001) Fred Fire (7,700 acres; 2004), Power Fire (16,800 acres; 2004), and the Tahoe National Forest's American River Complex Fire (20,541 acres; 2008) and numerous other large, wildland fires in California and across the western United States emphasize the desirability and the urgency of managing forest stands to reduce the likelihood of large, high severity wildfire. In the absence of fuel reductions it is likely that wildfire would determine the future landscape, threatening lives and property at the same time.

There is a need to make stands more resilient in the event of a wildfire. Forests in this area were

historically subject to frequent low intensity fires that resulted in open, fire-resistant stands of trees. High severity wildfire is believed to have mostly occurred in small areas ranging from clumps of trees to small areas. Multiple decades of fire exclusion, grazing by domestic livestock, previous stand replacing wildfire, mining, and historic logging practices, including selective logging of large pines and lack of follow-up slash treatment, have contributed to altered fire regimes, heavy fuel loadings, and changed vegetation composition and structure. As a result, the number, size, and intensity of wildfires have been altered from their historical range (Boudin, 1999; Beesley, 1996; McKelvey and Johnston, 1992, Miller et al, 2009).

A strategic spatial design of treatments based on the historical ecological processes and landscape patterns within the project area is needed to ensure effectiveness of fire behavior modification and stand resilience at the landscape level. Within units identified for treatments, Forest Plan Direction is that treatments should be designed to achieve an average of 4 foot flame lengths and less than 20 percent mortality in dominant and co-dominant trees under 90th percentile weather conditions. The focus of fuels treatments is to improve the ability of treated stands to withstand the adverse effects of future fires. Treatments are not intended to specifically facilitate fire suppression efforts. However, safe and effective initial attack by hand crews and engine modules, the initial attack forces of the Georgetown Ranger District, is supported by having areas with lowered fuel conditions where fire behavior would allow the opportunity for direct suppression actions. Fire suppression in this area is typically the necessary response due to current wildfire policy for the project area and

occasionally encountered, were typically surrounded by thickets of incense cedar and white fir. The water demands due to overcrowding place increased water stress on legacy trees, making them more susceptible to bark beetles or other damaging agents.

Forest health specialists identified that while healthy forests require some levels of native insect and disease activity there is a need to reduce further establishment and spread of Annosus root rot within treatment units 318-1, 320-43, 320-67, and 320-71 (Bulaon et al. 2009). These stands are experiencing high levels of mortality due to disease and insect activity. Although some of the stands have been thinned and salvage logged in the past, the predominantly white fir stands are expected to continue to decrease in health and vigor over time due to insects, Annosus root rot, and other disease pathogens. Without treatment, these stands would continue to exhibit tree mortality, further reducing canopy cover and changing stand structure and composition and locally increasing fuel loading which could contribute to more severe fire behavior.

Key observations and recommendations for areas proposed for stand improvement with gap expansions:

In most of these areas, stand composition was characteristically dominated by mature white fir with varying degrees of decline. Annosum root disease fruiting bodies or xylem delamination decay were consistently identified from older cut stumps in the center of openings. No pine or cedar stumps were found with Annosum

3) The third purpose of this project is to restore portions of the forest to the composition of tree species and size classes that are closer to the historic conditions for the area and are likely to be more sustainable into the future considering the biophysical and climatic conditions of the area.

There is a need to apply the necessary silvicultural and fuels reduction treatments to accelerate the development of key habitat and old forest characteristics, increase stand heterogeneity, and to promote pine species and hardwoods. Rather than attempt to restore the stands to reflect a specific point in history, there is a need to restore a forest structure and species composition that is more resilient to drought, insect and disease pathogens, and wildfire. The project area is characteristic of much of the mixed-conifer zone of the Sierra Nevada with few or no stands remaining that can be described as natural. To various degrees the forest in the project area has been changed from one dominated by large, old, widely spaced trees to one with dense, fairly even-aged stands with most of the larger trees between 80 and 100 years old. This is characteristic of an unstable, unsustainable forest that is susceptible to drought-induced mortality, bark beetle infestation, and severe wildfire (McKelvey and Johnston, 1992). Reducing competition by removing some of the trees that have grown in the absence of frequent fire would enable other trees to grow larger more quickly, thereby providing greater numbers of large trees and snags to support the future ecological functions of old forests. Treatments are also needed to reduce the risk of fire related mortality to existing large and old trees that are currently within the units, maintaining the valuable structure and function that they provide within the stands.

There is a need to promote shade intolerant pines and hardwoods while decreasing the amount of shade tolerant white fir and incense cedar, thereby moving stands closer to a more sustainable species composition. Large areas of the landscape are currently dominated by dense stands of shade-tolerant, drought- and/or fire-intolerant species (white fir, incense-cedar, and Douglas-fir). As discussed above, as a result of the current species composition and risk from fire, insect and disease pathogens, stands in their current conditions are not sustainable given the periodic droughts that occur in this area.

There are plantation stands within the project area that do not currently have a structure that is expected to naturally develop into functioning old forest habitat in the future. Reduction of competing vegetation including both brush species and some trees is needed to facilitate tree growth of the desired residual trees. Brush species are highly competitive with growing trees reducing both height and basal area growth. The dominant brush species of concern within stands include white-thorn (*Ceanothus cordulatus*), greenleaf manzinita (*Arctostaphylos patula*), Bitter Cherry (*Prunus emarginata*), and Deerbrush (*Ceanothus integerrimus*). Whiteleaf manzanita (*Arctostaphylos viscida*) and brush chinquapin (*Castanopsis sempervirons*) are also

located as a large component within some stands. Reduction in competing vegetation to less than 30% cover is needed to allow stands to more rapidly develop large trees (Oliver, 1984), and increase the probability that these stands would survive into the future. These stands could then be managed to provide for the development of additional components of structure in future decades as they age and become suitable for old forest dependent species.

In stands 318-1, 320-43, 320-67, and 320-71 which have been type converted from pine to white fir through natural mortality and the selective logging of pine, there is a need to actively restore pine to re-establish an appropriate species composition that would provide for future wildlife habitat and reduced Annosus root rot spread.

4) A fourth purpose of the project is to treat hazard fuels and implement forest health improvements in a cost-effective manner to maximize program effectiveness and ensure that sufficient treatments occur to have a reasonable likelihood of changing landscape fire behavior and providing improved landscape-scale forest resilience.

There is a need for this project to be cost effective so that sufficient treatment occurs to meet landscape objectives. While individual treatments would improve conditions within the actual units treated, the project must treat sufficient areas to reasonably interrupt the future paths of wildfires that may burn under adverse weather conditions. Without sufficient treatments across the project area, wildfire risks to valuable resources, such as remnant older forests and habitats for old forest dependent species would not be reduced.

There is a need for this project to consider a combination of reasonably expected appropriated funds and cost-offset opportunities to efficiently accomplish all of the treatments. The ability to implement the project is dependent upon a mixture of funds for managing forests resources, hazardous fuels, wildlife and fisheries habitats, and watersheds. Many of the trees that are desired to be removed to meet one or more of the other purposes also have the opportunity for commercial uses that can partially offset the costs associated with the investment components of this project.

1.3 PROJECT LOCATION

The project area is situated approximately 15 miles northeast of Georgetown, CA in the vicinity of Nevada Point Ridge and Devils Peak.

The legal location is:
Sections 13, 14, 16, 22-25 and 36 Township (T) 13 North (N), Range (R) 12 East (E), Mount Diablo Base and Meridian (MDB&M);
Sections 1-3, 9-23, and 26-33, T13N, R13E, MDB&M;
Section 6, T13N, R14E, MDB&M
Section 36, T14N, R13E, MDB&M

The proposed treatment areas are primarily in the Mixed Conifer Forest Zone. All treatment areas are between elevations of approximately 3,400 and 5,600 feet. The desired future conditions for the land allocations for the 19,255 acres of Eldorado National Forest within the approximately 20,761 acre project area are discussed below in the Desired Future conditions section. Approximately 32 percent of the National Forest System land within the project area is proposed for treatment.

Approximately 1,506 acres of non-National Forest System lands are located within the project area boundary. Because these lands are managed by private individuals and organizations under different state regulations these lands cannot be expected to be managed for the same multiple use objectives as National Forest lands.

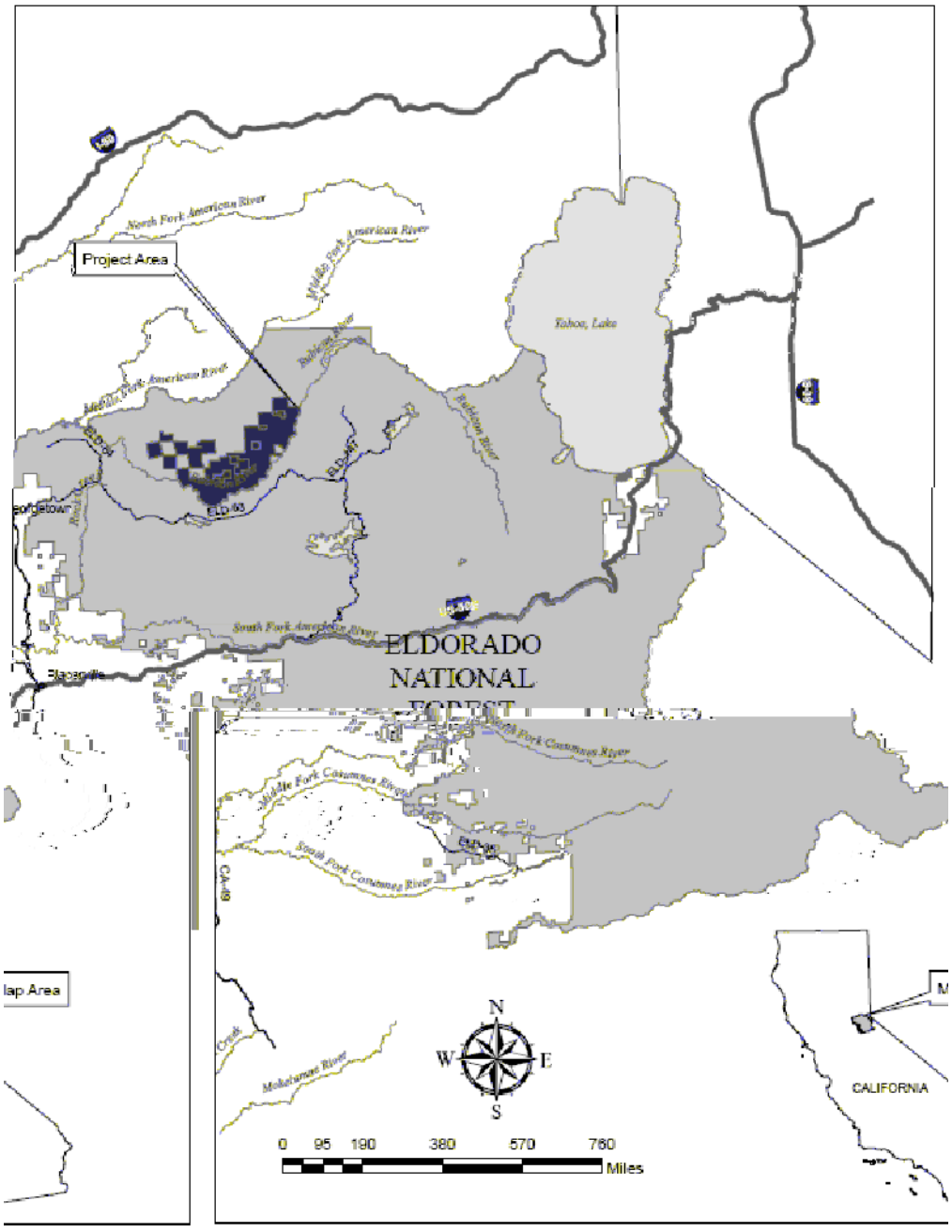

FIGURE 1: BIG GRIZZLY PROJECT VICINITY MAP

FIGURE 2: BIG GRIZZLY PROJECT AREA MAP *PROPERTY LINES ARE APPROXIMATE

1.4 DESIRED FUTURE CONDITIONS

The land allocations within the project area, as identified in the Sierra Nevada Forest Plan Supplemental EIS (SNFPA SEIS) (USDA Forest Service 2004), are: California spotted owl and Northern goshawk protected activity centers (PACs), spotted owl home range core areas (HRCA), old-forest, general forest, and riparian conservation areas (RCAs) associated with perennial, seasonal, and ephemeral streams.

The Desired Future Condition is a vision statement describing desired management conditions for a specific land area. Management direction for the Eldorado National Forest is described in the Eldorado National Forest Land and Resource Management Plan (LRMP). The Eldorado LRMP was amended in January 2004 by the Sierra Nevada Forest Plan Amendment (SNFPA).

Acres of land allocations within the project area are listed in Table 1.

TABLE 1 BIG GRIZZLY PROJECT AREA ACREAGE BY LAND ALLOCATION

Allocation	Project Area
SPLAT	4937
Old Forest	7867
HRCA*	19894
RCA	6148
General Forest	11388
Goshawk Pac	1988
Owl Pac	4734
SPLAT Old Forest Overlap	925
Total Acres	19255
*acres overlap are therefore double counted	

Land Allocations, as defined by the SNFPA, have distinct management goals, management requirements, and desired conditions (Table 2)

TABLE 2 DESIRED FUTURE CONDITION BY LAND ALLOCATION

Land Allocation	Desired Conditions	Management Intent	Management Objectives
California spotted owl and Northern goshawk PACs	At least two tree canopy layers are present. Dominant and co-dominant trees average at least 24 inches dbh. Area within PAC has at least 60 to 70 percent canopy cover. Some very large snags are present (greater than 45 inches dbh). Levels of snags and down woody material are higher than average	Maintain PACs so that they continue to provide habitat conditions that support successful reproduction of California spotted owls and northern goshawks.	Avoid vegetation and fuels management activities within PACs to the greatest extent feasible. Reduce hazardous fuels in PACs in defense zones when they create an unacceptable fire threat to communities. Where PACs cannot be avoided in the strategic placement of treatments, ensure effective treatment of surface, ladder, and crown fuels within treated areas. If nesting or foraging habitat in PACs is mechanically treated, mitigate by adding acreage to the PAC equivalent to the treated acreage wherever possible. Add adjacent acres of comparable quality wherever possible.
HRCAs	Within home ranges, HRCAs consist of large habitat blocks having: at least two tree canopy layers. at least 24 inches dbh in dominant and co-dominant trees. a number of very large (>45 inches dbh) old trees. at least 50-70% canopy cover. higher than average levels of snags and down woody material.	Treat fuels using a landscape approach for strategically placing area treatments to modify fire behavior. Retain existing suitable habitat, recognizing that habitat within treated areas may be modified to meet fuels objectives. Accelerate development of currently unsuitable habitat (in non-habitat inclusions, such as plantations) into suitable condition. Arrange treatment patterns and design treatment prescriptions to avoid the highest quality habitat (CWHR types 5M, 5D, and 6) wherever possible	Establish and maintain a pattern of fuels treatments that is effective in modifying wildfire behavior. Design treatments in HRCAs to be economically efficient and to promote forest health where consistent with habitat objectives.

Old Forest Emphasis Areas	Forest structure and function generally resemble pre-settlement conditions. High levels of horizontal and vertical diversity exist within 10,000 acre landscapes. Stands are composed of roughly even-aged vegetation groups, varying in size, species composition, and structure. Individual vegetation groups range from less than 0.5 to more than 5 acres in size. Tree sizes range from seedlings to very large diameter trees. Species composition varies by elevation, site productivity, and related environmental factors. Multi-tiered canopies, particularly in older forests, provide vertical heterogeneity. Dead trees, both standing and fallen, meet habitat needs of old-forest-associated species. Where possible, areas treated for fuels also provide for the successful establishment of early seral stage vegetation.	Maintain or develop old forest habitat in areas containing the best remaining large blocks or landscape concentrations of old forest and/or areas that provide old forest functions (such as connectivity of habitat over a range of elevations to allow migration of wide-ranging old-forest-associated species). Establish and maintain a pattern of area treatments that is effective in: modifying fire behavior. culturing stand structure and composition to generally resemble pre-settlement conditions. reducing susceptibility to insect/pathogen drought-related tree mortality. Focus management activities on the short-term goal of reducing the adverse effects of wildfire. Acknowledge the need for a longer-term strategy to restore both the structure and processes of these ecosystems.	Establish and maintain a pattern of area treatments that is effective in modifying wildfire behavior. Maintain and/or establish appropriate species composition and size classes. Reduce the risk of insect/pathogen drought-related mortality by managing stand density levels. Design economically efficient treatments to reduce hazardous fuels.
General Forest	Same as above	Actively manage general forest areas to maintain, and enhance a variety of vegetative conditions. Strategically place fuels treatments to modify wildfire behavior. Reduce hazardous fuels in key areas to lessen the threat of high severity fire.	Establish and maintain a pattern of area treatments that is effective in modifying wildfire behavior. Reduce the risk of insect/pathogen drought-related mortality by managing stand density levels. Design economically efficient treatments to reduce hazardous fuels.

RCA	Water quality to meets goals of the Clean Water Act and Safe Drinking Water Act, providing water that is fishable, swimmable, and suitable for drinking after normal treatment. Habitat supports viable populations of native and desired non-native plant, invertebrate, and vertebrate riparian and aquatic-dependent species. New introductions of invasive species are prevented. Where invasive species are adversely affecting the viability of native species, the appropriate State and Federal wildlife agencies have reduced impacts to native populations. Species composition and structural diversity of plant and animal communities in riparian areas, wetlands, and meadows provide desired habitat conditions and ecological function. Spatial and temporal connectivity for riparian and aquatic-dependent species within and between watersheds provides physically, chemically and biologically unobstructed movement for their survival, migration and reproduction. The connections of floodplains

Desired Future Conditions specific to resources within the Big Grizzly Project area are summarized below.

1.4-A - VEGETATION

The management goals of the Big Grizzly project are to move stands toward a range of structures and composition that are more likely to be sustainable over time. Sequentially, treatments would improve forest health and therefore increase resilience to disturbance, as well as provide habitat for a variety of plants and animals that evolved with these ecological systems, while likely to maintaining hydrologic functions of aquatic ecosystems.

The best opportunity to increase the proportion of shade intolerant species (oaks, ponderosa pine, and sugar pine) is to favor them during treatment operations by retaining these species while removing the shade tolerant species (white fir and incense cedar). Regeneration opportunities that would increase these species are limited under current direction to regeneration of natural openings that occur within the stands caused by mortality from insects, disease, drought, and/or fire.

FIGURE 3: PHOTOGRAPH OF UNHEALTHY STAND CONDITIONS.

Figure 3 was taken in a proposed treatment unit in the project area to illustrate the ladder fuels and hazardous fuel loadings present in many of the historically open, ridgetop stands. These stand conditions are typically drought stressed and therefore predisposed to insect, disease outbreaks or stand replacement fire.

FIGURE 4: PHOTOGRAPH OF MORTALITY POCKET.

Figure 4 was taken within a treatment unit in the project area to illustrate the mortality occurring within the project area from Annosus root rot and other insect and disease pathogens.

FIGURE 5: PHOTOGRAPH OF DESIRED FUTURE CONDITIONS FOR TREATMENT AREAS.

Figure 5 was taken approximately 15 miles south of the Big Grizzly Project area in a stand that used to have similar conditions to those in Figure 3. The vegetation was treated with a commercial thin approximately 4 years ago. The stand now shows the general characteristics of our ridge-top, mixed conifer stands. With fewer trees per acre in a more open structure, it is currently and would continue to be much more resilient to drought, insect and disease epidemics, and the threat of stand replacing wildfire.

1.4-B – WILDLIFE

The desired future condition for the wildlife in the Big Grizzly project area is to provide for a range of forest structures in the area, including larger patch sizes with less fragmentation. Because the project area is located in an intermix of private property that is not governed by National Forest Management regulation, providing for continued wildlife habitat on the National Forest System lands is exceedingly important. This project contains many stands that are relatively similar in size and age, and are not providing a wide range of wildlife habitats.

Wildlife species have a distinct successional strategy. As vegetation moves through each stage of succession, the composition of wildlife species shifts accordingly. Some species are more suited to the early stages of forest succession where grasses, forbs and shrubs dominate the site, while others are better suited for the later stages of forest development. Other species are more generalist and have adapted to a wide array of vegetation patterns.

1.5 PROPOSED ACTION

The proposal for management using Alternative 1 in the Big Grizzly project area includes vegetation treatments in 138 units, totaling approximately 5,730 acres. To begin the trend toward desired future conditions, we are proposing silvicultural treatments that include thinning, regeneration, stand improvement, and mastication. Harvest systems would be ground based. Surface fuels would be treated using mechanical piling and pile burning, and prescribed fire.

Silvicultural treatments for each stand were chosen for their ability to meet the stated purpose and need. The focus of each treatment is based on the desired quality of each treatment area after management rather than the quantity or quality of the products removed from each area. In fact, some treatment would not remove forest products.

1.5-A – FOREST PLAN DIRECTION

The Eldorado National Forest Land and Resource Management plan as amended by the 2004 Record of Decision (ROD) for the Sierra Nevada Forest Plan Amendment (SNFPA) provides direction for all resource management programs and resource activities on the Eldorado National Forest. The Forest Plan consists of Forest-wide goals and standards as well as Land Allocation (or Management Area) specific standards and guidelines that provide for land uses and resource outputs. The Forest Plan embodies the provisions of the National Forest Management Act (NFMA) of 1976 and its implementation regulations.

Specific Forest Plan goals that guided the development of the Purpose and Need are:

- Set priority for management activities that would restore natural ecosystem processes while minimizing the threat fire poses to lives, structures, and resources through site specific prescriptions designed to modify fire intensity and spread in treated areas
- Develop prescriptions for treatment areas that address identified needs to increase stand resistance to mortality from insect and disease by thinning densely stocked stands to reduce competition and improve tree vigor
- Protect, increase and perpetuate desired conditions of old forest ecosystems and conserve species associated with these ecosystems while meeting people's needs for commodities
- Increase the frequency of large trees, increase structural diversity of vegetation, and improve the continuity and distribution of old forests across the landscape
- Design of area treatments that are economically efficient where consistent with desired conditions, using wood by-products from over-dense [illegible]

1.6 DECISION TO BE MADE

This environmental analysis is not a decision document. The EIS discloses the environmental consequences of proceeding with the Proposed Action or any of the alternatives. The Responsible Official (Forest Supervisor) will select an alternative based on the information in this document, on public comments, on financial considerations, and on how well the preferred alternative meets the purpose and need of the project and complies with applicable state and federal laws, agency policy and Forest Plan direction. The decision maker will choose the Proposed Action, No Action, or an alternative to the Proposed Action.

1.7 TIERING AND INCORPORATION BY REFERENCE

In order to eliminate repetitive discussion and documentation, this environmental assessment tiers to the analysis of, and is consistent with, the Eldorado National Forest Land and Resources Management Plan (LRMP 1988) as amended by the Sierra Nevada Forest Plan Amendment (SNFPA 2004).